

Sector 8



whitehead institute
for biomedical research

IBM-MIT-McGill-Whitehead CAT

Overview

IBM-MIT-McGill-Whitehead CAT (IMMW-CAT) was organized by individual scientists to build and operate a sector at the APS optimized to conduct many kinds of x-ray scattering research. The undulator beamline is well suited to small-angle scattering experiments; high-resolution, wide-angle scattering experiments; and experiments involving dynamic phenomena in materials science, condensed matter physics, and biological physics. The bending magnet beamline is being developed for macromolecular crystallography.

Research Focus

IMMW-CAT's research spans a broad range of topics. Experiments conducted by CAT-member scientists fall primarily into the following areas:

1. Small-angle x-ray scattering studies, especially of soft matter.
2. Time-resolved x-ray scattering studies of bulk phase transition kinetics.
3. High-resolution, wide-angle diffraction studies of solid state materials, their phase behavior, and phase transitions.
4. Studies of equilibrium and non-equilibrium dynamics using the emerging technique of x-ray photon correlation spectroscopy (XPCS) and the development of XPCS-related coherent x-ray methods.
5. High-resolution x-ray diffraction studies of the structure of biologically important macromolecules (including MAD studies).

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